REMARKS

The Examiner is thanked for the performance of a thorough search.

Claims 1, 6-10, and 35 have been amended. Claims 17, 20-28, and 36-40 have been canceled. Claims 41-55 have been newly added. Hence, Claims 1, 4-12, 33-35, and 41-55 are pending in the present application.

Each issue raised in the Office Action mailed September 2, 2009 is addressed hereinafter.

I.   SUMMARY OF TELEPHONE INTERVIEW

The Examiner is thanked for granting the courtesy of a telephone interview on December 2, 2009. Examiners Hong and Patel and Applicant's representative Stoycho D. Draganoff attended the interview. Claim 1 and proposed amendments thereof were discussed. The reference discussed was Vedula et al., U.S. Patent No. 6,823,495 ("VEDULA"). An agreement regarding patentability was not reached. Examiner Patel indicated that the proposed amendments to Claim 1 seem to overcome the rejections under 35 U.S.C. § 112, first paragraph and 35 U.S.C § 103(a), but that a further consideration and search of the proposed amendments would be needed. The proposed amendments to Claim 1 have been officially filed herewith.

II.   REJECTIONS UNDER 35 U.S.C. § 112

Claim 1 was rejected under 35 U.S.C. § 112, first paragraph as allegedly failing to comply with the enablement requirement. Specifically, the Office Action asserts that the mapping scheme featured in Claim 1 is a "representation" of the XML document, and therefore the feature of Claim 1 of "… without creating and storing any representation of said XML document" is not described in the specification in such a way as to enable one of skill in the art to make and use the invention. This rejection is respectfully traversed.

First, it is respectfully noted that the specification and the drawings include numerous descriptions and illustrations that make it very clear to one of skill in the art that a mapping

scheme is not a representation of an XML document. For example, Fig. 2 clearly indicates that the mapping scheme is something different from both a source (e.g., such as XML document) and a target (e.g., such as a database). In another example, at least Fig. 1 and paragraph [0032] indicate that a mapping scheme may store a data definition which is clearly not the actual data that is stored in a document conforming to that data definition. In another example, in paragraph [0054] the specification clearly describes that a mapping scheme can be used to facilitate the storing of a source electronic document into a target; therefore, the mapping scheme itself is clearly not a representation of the document being stored.

Second, it is respectfully noted that in the Reply to Office Action filed on <u>December 11, 2006</u>, the Applicants filed an amendment which incorporated into the Specification verbatim material from the priority provisional application. At least this amendment to the Specification provides more than ample support for the functionality of element-by-element processing of a transformation that moves an XML document into a relational database, where the processing does not create or store a representation of the <u>entire</u> XML document <u>during</u> the transformation.

For the foregoing reasons, reconsideration and withdrawal of the rejection of Claim 1, and of the dependent claims thereof, under 35 U.S.C. § 112, first paragraph is respectfully requested.

III.   ISSUES RELATING TO THE PRIOR ART

    A.   INDEPENDENT CLAIM 1

Claim 1 was rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over Vedula et al., U.S. Patent No. 6,823,495 ("VEDULA") in view of Shadmon et al., U.S. Patent No. 6,804,677 ("SHADMON").

Among other features, Claim 1 comprises:

        receiving commands from a user, wherein said commands establish a **mapping** between
                attributes of an **XML document** and attributes of a **relational database**;

wherein said **attributes** of said **relational database** correspond to **columns in tables in said relational database**;

based on said commands, **automatically generating a mapping scheme that represents said mapping…**;

using said mapping scheme to perform a **single transformation** that moves said XML document **directly** into said relational database: (a) without materializing said entire XML document separate from said XML document and said relational database during said transformation, and (b) **without creating and storing any representation of said entire XML document separate from said XML document and said relational database during said transformation**;

wherein using said mapping scheme to perform said single transformation comprises:

determining, based on said mapping scheme, first one or more columns of first one or more tables of said relational database to which a first XML element of said XML document maps;

before processing a second XML element of said XML document, storing said first XML element in said first one or more columns of said first one or more tables of said relational database;

after storing of said first XML element is completed, determining, based on said mapping scheme, second one or more columns of second one or more tables of said relational database to which said second XML element maps; and

storing said second XML element in said second one or more columns of said second one or more tables of said relational database;

… .

It is respectfully submitted that the above features of Claim 1 are not described or suggested by

VEDULA and SHADMON.

      a.   <u>Element-By-Element Processing and Storing of XML Elements</u>

The Office Action asserts that VEDULA describes the feature of Claim 1 of using said

mapping scheme to perform a single transformation that moves said XML document directly into

said relational database. This assertion is incorrect.

VEDULA describes transformations that are performed by using XSLT style sheets. (See

VEDULA, Fig. 2 and col. 9, lines 42-54). However, performing XSLT transformations requires

that the <u>entire</u> source data being transformed must be in an XML format before an XSLT style

sheet is applied, and that the XSLT transformations return as output the <u>entire</u> transformed data

in XML format. Thus, the transformations in VEDULA involve <u>multiple data transformation</u>

<u>steps</u>, according to which all XML elements in a source XML document are first processed by

applying XSLT transformations, and only thereafter the transformed XML elements are stored in a target XML document.

In contrast, Claim 1 comprises the feature of using a mapping scheme to perform a single transformation that moves an XML document directly into a relational database: (a) without materializing said entire XML document separate from said XML document and said relational database during said transformation, and (b) without creating and storing any representation of said entire XML document separate from said XML document and said relational database during said transformation. Thus, since VEDULA describes use of <u>multiple</u> data transformation steps to convert a source XML document to a target XML document, VEDULA does not describe the above feature of Claim 1.

Further, Claim 1 indicates that the feature of using the mapping scheme to perform a single transformation involves <u>element-by-element</u> processing according to which the XML document is not materialized in its entirety separate from the XML document itself and the relational database. Specifically, this feature of Claim 1 indicates that: (1) <u>before</u> processing a <u>second</u> XML element of the XML document, a <u>first</u> XML element is <u>stored</u> in first one or more columns of first one or more tables of the <u>relational database</u>; and (2) <u>after</u> <u>storing</u> of the <u>first</u> XML element is **<u>completed</u>**, … the <u>second</u> XML element is <u>stored</u> in second one or more columns of second one or more tables of the <u>relational database</u>. These features of Claim 1 are not described by VEDULA not the least because, as discussed above, the XSLT transformations require that the <u>entire</u> source data being transformed must be in an XML format before an XSLT style sheet is applied, and that the XSLT transformations return as output the <u>entire</u> transformed data in XML format.

Finally, it is noted that SHADMON does not cure the deficiency of VEDULA with respect to the above features of Claim 1. SHADMON describes a method for encoding semi-

structured data, according to which input semi-structured data is encoded by using strings of

arbitrary lengths in a way that maintain non-structural and structural information associated with

the input data and that allow the encoded output data to be indexed for efficient access. (See

SHADMON, col. 9, lines 42-51.) Significantly, however, SHADMON expressly describes that

the process of encoding involves generation of multiple tree representations of the entire input

XML document before the XML document is stored in a database. (See, for example,

SHADMON, col. 12, lines 35-54, and col. 14, lines 15-37.) Thus, similarly to VEDULA,

SHADMON also describes use of multiple data transformation steps to encode an XML

document prior to storing the XML document in a database.

For the foregoing reasons, VEDULA and SHADMON doenot describe the above features

of Claim 1.

> b.   Mapping Scheme

The Office Action also asserts that the XSLT map described in VEDULA corresponds to

the mapping scheme of Claim 1. This assertion is incorrect.

VEDULA expressly describes that its XSLT map reflects an XSLT transformation. (See

VEDULA, col. 9, lines 42-54.) However, an XSLT transformation on its own cannot store data

directly in a relational database; rather, an XSLT transformation can transform a source XML

document into a target XML document of a different format. Further, while VEDULA states

that the source and target objects of can be "databases" (e.g., see VEDULA, col. 9, lines 24-27),

VEDULA does not include any description of how an XSLT map can map an XML document to

a relational database that includes tables with columns. In fact, numerous figures and

descriptions in VEDULA expressly indicate that VEDULA's XSLT map is used to map a

hierarchical source (such as an XML document) to a hierarchical target (such as another XML

document). (See, for example, VEDULA, Figs. 1, 3A, 5, 7A, 8A, 9A, 10A-D, 11B, 12A, and col.

9, lines 62-67.) In other words, VEDULA does not include any description which indicates a mapping between a <u>hierarchical</u> source (e.g., an XML document) and a <u>relational</u> target (e.g., a relational database).

In contrast, Claim 1 comprises the features of: receiving commands from a user, wherein said commands establish a mapping between attributes of an XML document and attributes of a relational database; wherein said attributes of said relational database correspond to columns in tables in said relational database; and based on said commands, automatically generating a mapping scheme that represents said mapping... . These features of Claim 1 indicate the automatic generation of a mapping scheme that represents a mapping between attributes of an XML document and columns in tables in a relational database. Since VEDULA does not describe or even suggest that its XSLT map maps a <u>hierarchical</u> source to a <u>relational</u> target, VEDULA does not describe the above features of Claim 1.

For the foregoing reasons, VEDULA and SHADMON whether taken alone or in combination do not describe or suggest all features of Claim 1. Thus, Claim 1 is patentable under 35 U.S.C. § 103(a) over VEDULA in view of SHADMON. Reconsideration and withdrawal of the rejection of Claim 1 is respectfully requested.

B.   DEPENDENT CLAIMS 4-12 AND 33-35

Claims 4-12 and 33-35 were rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over VEDULA in view of SHADMON.

Each of Claims 4-12 and 33-35 depends from independent Claim 1, and thus includes each and every feature of the independent base claim. Thus, each of Claims 4-12 and 33-35 is allowable for at least the reasons given above for Claim 1. In addition, each of Claims 4-12 and 33-35 introduces one or more additional features that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive

resolution of this case a separate discussion of those features is not included at this time.

Therefore, it is respectfully submitted that Claims 4-12 and 33-35 are allowable for the reasons

given above with respect to Claim 1. Reconsideration and withdrawal of the rejection of Claims

4-12 and 33-35 is respectfully requested.

C.   NEW CLAIMS 41-55

New dependent Claim 41 depends from independent Claim 1, and thus includes each and

every feature of the independent base claim. Thus, it is respectfully submitted that Claim 41 is

patentable for at least the reasons given above with respect to Claim 1. Consideration and

allowance of Claim 41 is respectfully requested.

New independent Claim 42 includes features similar to the features of Claim 1 discussed

above, except in the context of a computer-readable storage medium. Thus, it is respectfully

submitted that Claim 42 is patentable for at least the reasons given above with respect to Claim

1. Consideration and allowance of Claim 42 is respectfully requested.

Each of new Claims 43-55 depends from new independent Claim 42, and thus includes

each and every feature of the independent base claim. Thus, each of Claims 43-55 is allowable

for at least the reasons given above for Claim 42. In addition, each of Claims 43-55 introduces

one or more additional features that independently render it patentable. However, due to the

fundamental differences already identified, to expedite the positive resolution of this case a

separate discussion of those features is not included at this time. Therefore, it is respectfully

submitted that Claims 43-55 are allowable for the reasons given above with respect to Claim 42.

Consideration and allowance of Claims 43-55 is respectfully requested.

IV.   CONCLUSION

The Applicant believes that all issues raised in the Office Action have been addressed.

Further, for the reasons set forth above, the Applicant respectfully submits that allowance of the

pending claims is appropriate. Reconsideration of the present application is respectfully requested in light of the amendments and remarks herein.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

A petition for extension of time, to the extent necessary to make this reply timely filed, is hereby made. If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,

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